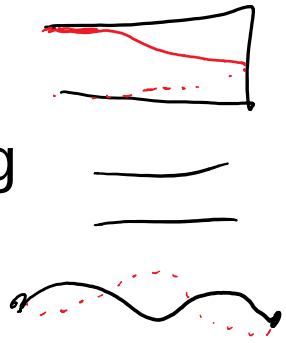
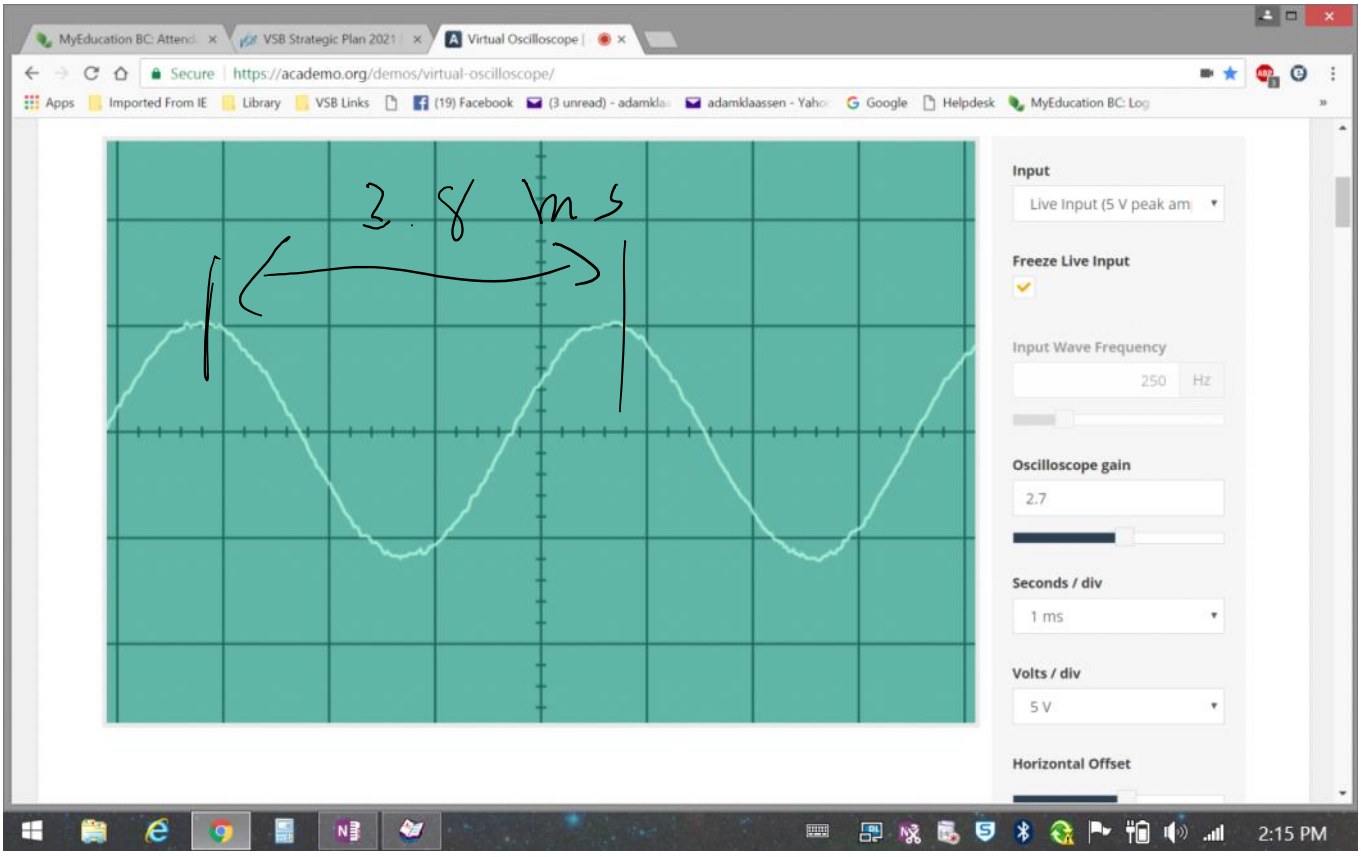
From last class:

$v=\lambda f$ $L=(2N-1)\lambda/4$ closed tube

$L=N\lambda/2$ open tube or vibrating string

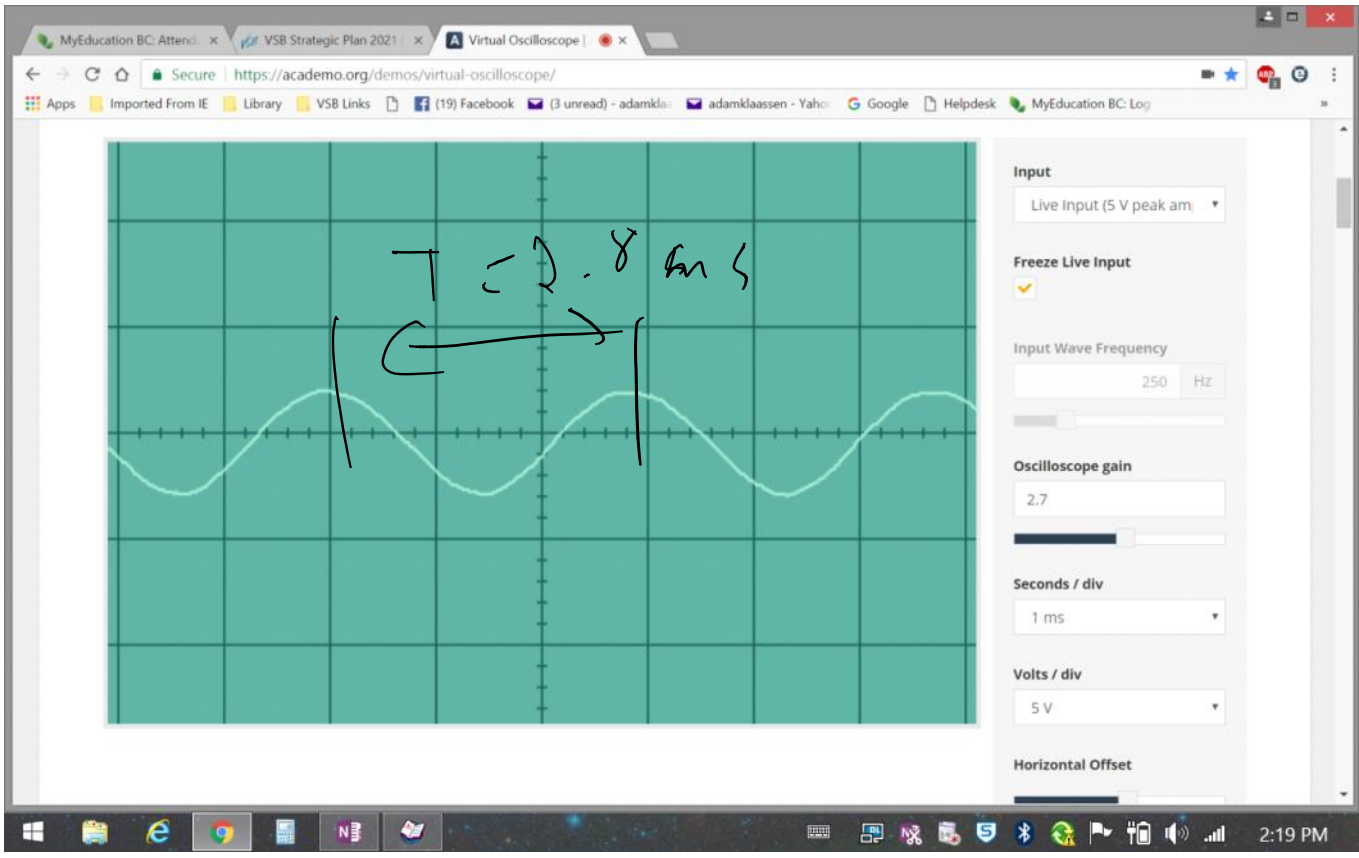




$$f = \frac{1}{T} = \frac{1}{3.8\ ms}$$

$$= 0.26\ kHz$$

$\therefore$ 260 Hz



$f = \frac{1}{2.8\text{ ms}} = 360\text{ Hz}$

$\therefore$ If we hit two tuning forks, what do you hear?

- if they have the same frequency (pitch) the sound gets louder (some interference in locations in the room - double slit experiment)

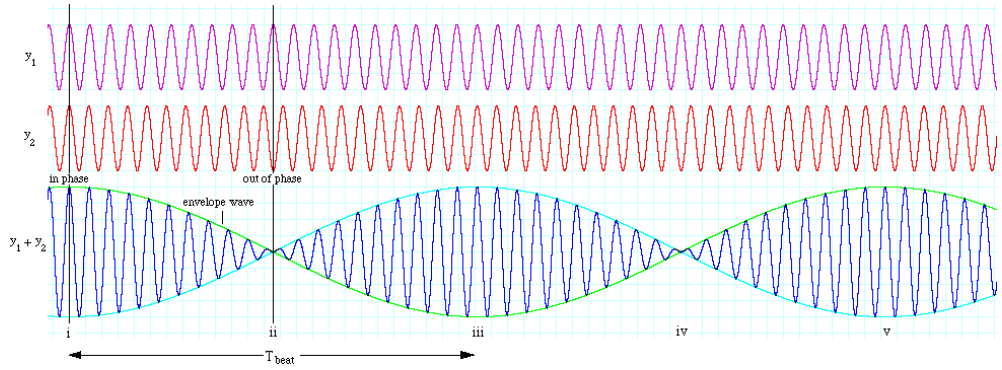
- If the frequencies are close, then you hear - ~~when~~ wahh wahh sound - Beats.

$$f_b = |f_2 - f_1|$$

f_b - Beat frequency

f_2 and f_1 are two

frequencies superimposed



What if they are not close?

The bigger the difference between the frequencies
- faster the beats vanish
- they are too fast to hear - becomes harmony or dissonance.

eg. you hit a 256Hz tuning fork and another fork and hear 3.0 Hz beats. What is the frequency of the other fork?

An organ pipe is a closed tube,

1.2m long. If another pipe, 1.1m long plays at the same time, what are the beat frequencies produced.
homework:
p321 Q11, 12,
keeners : p326 Q11, 12, 25
p327 17, 21, 23,
Quiz April 13th